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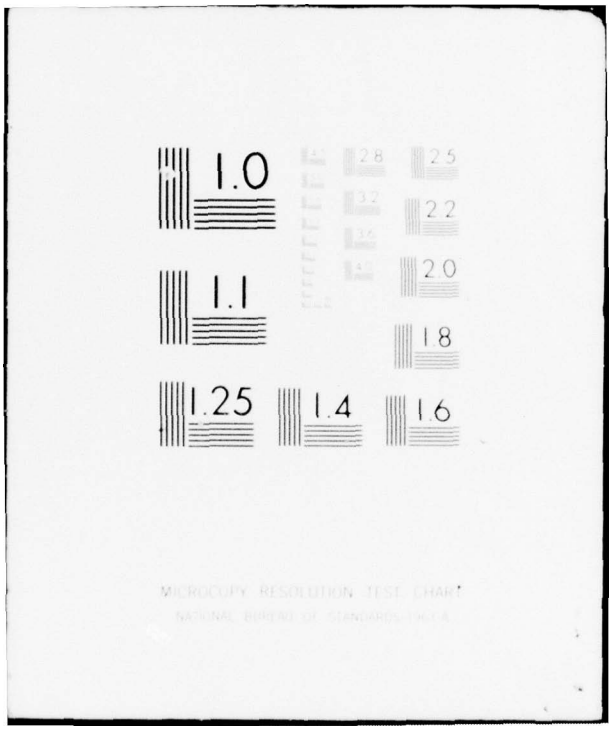
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Psychological Climate: Implications from Cognitive Social Learning Theory and Interactional Psychology

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Underlying assumptions and rationale of psychological climate are addressed from the perspectives of cognitive social learning theory and interactional psychology. Major emphasis was placed on the implications of these theoretical models for psychological climate. It is suggested that psychological climate (a) reflects psychologically meaningful, cognitive representations of situations rather than automatic reflections of specific situational events; (b) is generally more important than the objective situation in the prediction

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of many salient individual dependent variables; (c) is predicted on developmental experience, and frequently involves conflicting orientations generated by the preservation of valued and familiar schemas, on one hand, and openness to change in the interest of achieving adaptive and functional person-environment fits, on the other; and (d) is related reciprocally to memory, affect, and behavior in a causal model which predicts a reciprocal causation between perception and affect, and individuals and environments. The suggestions above were employed to provide recommendations for future research.

Abstract

Underlying assumptions and rationale of psychological climate are addressed from the perspectives of cognitive social learning theory and interactional psychology. Major emphasis was placed on the implications of these theoretical models for psychological climate. It is suggested that psychological climate (a) reflects psychologically meaningful, cognitive representations of situations rather than automatic reflections of specific situational events; (b) is generally more important than the objective situation in the prediction of many salient individual dependent variables; (c) is predicated on developmental experience, and frequently involves conflicting orientations generated by the preservation of valued and familiar schemas, on one hand, and openness to change in the interest of achieving adaptive and functional person-environment fits, on the other; and (d) is related reciprocally to memory, affect, and behavior in a causal model which predicts a reciprocal causation between perception and affect, and individuals and environments. The suggestions above were employed to provide recommendations for future research.

Psychological Climate: Implications from Cognitive Social Learning Theory and Interactional Psychology

Following a review of the climate literature, James and Jones (1974) recommended the differentiation between climate regarded as a situational attribute (organizational climate) and climate regarded as an individual attribute (psychological climate). It was noted further that clarification of the conceptual bounds of each of these constructs was needed. Several recent papers have addressed the conceptual bounds of one or both constructs (cf. James & Jones, 1976; James, Hartman, Stebbins, & Jones, 1977; Payne, Fineman, & Wall, 1976; Payne & Pugh, 1976; Schneider, 1975; Jones & James, Note 1), but greater emphasis has been given to climate as a situational attribute, including the total organizational climate as well as job, role, group, subsystem, etc., climates (cf. Drexler, 1977; Howe, 1977).

The objective of this paper is to explore further the conceptual bounds of psychological climate. The discussion draws parallels between climate theory and research and two related theories that are gaining increased momentum in psychology, namely cognitive social learning theory (cf. Mahoney, 1977; Mischel, 1968, 1973, 1976, 1977; Stotland & Canon, 1972) and interactional psychology (cf. Argyle & Little, 1972; Bowers, 1973; Ekehammar, 1974; Endler, 1975; Endler & Magnusson, 1976; Pervin, 1968, Note 2). Emphasis was placed on the implications of these theories for both theory and research on psychological climate.

The discussion is organized as follows: (a) a brief synopsis of recent assumptions regarding psychological climate (PC); (b) a discussion of some basic fundamentals of cognitive social learning theory and interactional psychology, and implications of these fundamentals for PC; and (c) a revision of some of the assumptions for PC based on the implications of cognitive social learning theory and interactional psychology. No attempt has been made to review the literature on climate, cognitive social learning theory, or interactional psychology. Reviews on these topics are cited in the text.

RECENT ASSUMPTIONS REGARDING PSYCHOLOGICAL CLIMATE

As summarized by James et al. (1977) and treated more extensively by Jones and James (Note 1), five underlying basic assumptions of PC are described below, although several changes were made in the present formulation.

1. PC represents a perceptually based, psychologically processed description of the situation, in which the individual filters, interprets, and structures perceptions of the situations (or environment--both terms will be used interchangeably to refer to all aspects of the "relevant environment"). In effect, the individual organizes perceptions of the environment into an abstract "cognitive map". That is, the situation that a particular individual "knows" is based on cognitive constructions, which are a function of both the individual and the situation (i.e., a Person X Situation interaction). Implicit in this perspective is the rationale that individuals may assign

unique meanings to the situation, and it is generally impossible to separate fully the influences of the situation and the individual on the climate perceptions. Thus, not only is a PC an individual attribute, but also PC is a product, and not a cause, of perceptual/cognitive processes (James & Jones, 1974). Finally, as discussed by Schneider (1975), climate perceptions appear to be based on molar or macro perceptions, which reflect the end-product of cognitive processing and concept formation (a cognitive model describing the above processes is suggested later).

2. PC is multidimensional, with what appears to be a limited number of dimensions that characterize a large and varied group of social environments (Campbell, Dunnette, Lawler, & Weick, 1970; Insel & Moos, 1974; Sims & LaFollette, 1975; Waters, Roach, & Batlis, 1974; Jones & James, Note 1), although specific dimensions might be added to describe idiosyncratic events in particular situations (cf. Schneider, 1975). In the study of organizational behavior, relevant domains of measurement appear to be (a) job attributes and role characteristics, (b) leadership behaviors, (c) workgroup interrelationships, and (d) subsystem and organizational characteristics which have relatively direct ties to individual experience.[1] A multivariate view of the perceived situation is implied in PC because it addresses the complexity of the situation and does not attempt to study single aspects [e.g., leadership] in the absence of others [e.g., job attributes].

3. PC functions as an intervening variable, where the point of

intervention is within the individual, serving to mediate between situational attributes and individual attributes such as attitudes and behaviors that are pertinent to the organization (cf. James & Jones, 1976).[2] PC is itself a product of filtering, abstraction, generalization, and interpretation, and, of primary importance to our concept of PC, when the focus is on the interpretive aspects of perception, these processes result in cognitive representations that reflect an interpretation of the situation in terms that are psychologically meaningful to the individual (e.g., ambiguous, challenging, conflicting, cooperative, facilitative, fair, friendly, growth-oriented, supportive, warm, trusting). For example, situational attributes might include unstructured role prescriptions, unclear reward contingencies, and nondirective leadership. However, as conceptualized, PC reflects the psychologically meaningful cognitive representations of these attributes, resulting in a climate perceived as ambiguous and conflicting.

This is an important point and deserves further discussion. One of the more cloudy issues in the climate literature is the phrase "perceptions of the situation". There are many ways to measure perceptions of situations. Although differences between specific and molar perceptions (Schneider, 1975) and between levels of analysis and levels of explanation (Drexler, 1977; Howe, 1977; James & Jones, 1974; Payne et al., 1976; Schneider, 1975) have been discussed, additional clarification is needed. In the interest of such clarification, two

sets of items are presented in Table 1. The first set illustrates situational descriptors, while the second set illustrates attempts to measure psychologically meaningfully cognitive representations of the situation(s).

Insert Table 1 about here

Both types of items have been employed to measure climate. Items used to measure situational descriptors are relatively specific and micro; they describe relatively specific, and typically objective, situational attributes (e.g., role prescriptions, specific events, actual processes, contextual variables, structure, etc.). As a result, organizational incumbents (or observers) are used as a source of measurement for situational variables. However, items of this type tend to miss the essence of what is here considered to be essential to psychological climate. That is, such items reveal nothing, directly, about how facets of the job, leader, workgroup and organization are interpreted, in psychologically meaningful terms, by individuals in each of the situations.

Items of the second type also describe situations, but emphasize a different type of variable, namely psychologically meaningful cognitive representations of situations. Such items are considered to represent the essence of PC because they focus directly on attempts to measure (actually, to infer) the psychological environment in terms that are psychologically meaningful, and can be used as a basis for

inferring role ambiguity, leader support, workgroup warmth and friendliness, and organizational concern.[3]

The concept of psychologically meaningful cognitive representations is reflected not only by the names given to most climate dimensions (e.g., ambiguous, warm, supportive, etc.), but also by Payne and Pugh's (1976) and Schneider's (1975) use of the concept "psychological meaningfulness". However, it would be erroneous to imply that climate researchers developed the rationale that individuals tend to interpret situations in psychologically meaningful terms. As discussed shortly, such rationale has a long history in psychology. Thus, to state the matter directly, individuals tend to interpret situations in ways that are psychologically meaningful to them and not just in terms of objective descriptions of specific situational attributes. This issue is believed to be of salient concern to psychologists inasmuch as cognitive representations of situations, expressed in psychologically meaningful terms, provide an informative base for hypothesizing how PC might be related to individual difference variables such as motivation, satisfaction, and performance, as discussed below.

It is further noteworthy that responses to items that focus on measuring (inferring) psychologically meaningful cognitive representations commonly involve considerable person variance. Indeed, as discussed at length in this report, PC by definition involves various forms of P X S interactions, including reciprocal interactions.

Furthermore, emphasis on psychologically meaningful cognitive representations of situations increases the probability of perceptual differences among individuals in the same situation. This does not invalidate the cognitive conceptualization of PC, but it does represent a realistic price that must be paid for the privilege of going beyond simple, descriptive reflections of specific situational attributes! In addition, perceptual differences are psychologically too important to be regarded as error variance, as unfortunately they have been all too frequently in climate research.

4. It is further assumed that individuals develop and employ perceptions of the situation to attempt to achieve a "fit" with the situation by "apprehending order" and "gauging appropriateness of behavior" (Ittelson, Proshansky, Rivlin, & Winkel, 1974; Schneider, 1975). For example, PC presumably functions as one of the first stages in a cognitive information processing model, serving to provide a major source of situational information used by the individual in the formulation of expectancies, instrumentalities, and affective reactions such as job satisfaction (James et al., 1977). In effect, expectancies, instrumentalities, and affect represent additional stages of information processing which reflect "internal perceptual/cognitive relationships" between "my" behavior, "my" performance, and "my" appraisals and value judgements and what has been perceived and cognized. Thus, PC is assumed to function as an internalized, psychological representation of the situation that serves as a guide for

attitude formulation and behavior. However, as discussed later, this functional view of PC is subject to several limitations, especially when a change is required that affects familiar and valued existing cognitive schemas. The possibility of reciprocal causation models linking PC to attitudes is addressed in a later section.

5. Situational attributes that appear to exercise major influence on PC are those that have relatively direct and immediate ties to individual experience in the environment (cf. Indik, 1968; Jessor & Jessor, 1973; James & Jones, 1976; Lawler, Hall, & Oldham, 1974). This assumption derives from social system and linkage models, in which proximal variables such as leader behaviors, workgroup processes, disciplinary and control processes, communication processes, and the like not only have a direct and immediate impact on individuals, but also mediate the effects of more distal variables such as structure (e.g., size).

In summary, based on the above assumptions, PC is defined as: The individual's cognitive representations of relatively proximal situational conditions, expressed in terms that reflect psychologically meaningful interpretations of the situation.[4]

IMPLICATIONS OF COGNITIVE SOCIAL LEARNING THEORY AND INTERACTIONAL PSYCHOLOGY FOR PSYCHOLOGICAL CLIMATE

With minor changes, the four fundamentals of cognitive-learning theory summarized recently by Mahoney (1977) were employed in this discussion. However, the ensuing treatment of the four fundamentals

includes rationale from several cognitive social learning theories and from reviews of interactional psychology (see earlier references). In this brief synopsis, the focus is on selected, but major points. It is not implied that all cognitive social learning theories or interactional theories are the same. Important differences are recognized between some cognitive social learning theories and interactional theories.

The fundamental of cognitive social learning theory/interactional psychology addressed here, and implications for PC, are as follows.

Fundamental 1

Individuals respond primarily to cognitive representations of situations rather than to situations per se.

The psychological environment. Ekehammar (1974), in a review of interactional psychology (which included early formulations by Kantor [1924, 1926], Koffka [1935], Lewin [1938, 1951], Murphy [1947], and Murray [1938]), noted that special emphasis is placed on the individuals "psychological environment". Ekehammar defined the *psychological environments* as "the 'subjective' world, which reflects the individual's perceptions and constructions of the external environment and can be described in terms of psychological variables" (p. 1027, Italics added). The rationale that perceptions of situations are often expressed in psychologically meaningful terms suggests that individuals perceive/cognize situations in terms of their personal or acquired meaning, which is a major component of a number of early (see

above) as well as current interactional and cognitive theories (cf. Bandura, 1977; Bowers, 1973; Endler & Magnusson, 1976; Ittleson et al., 1974; Jessor & Jessor, 1973; Mischel, 1973; Pervin, 1968; Rotter, 1954). In addition, Endler and Magnusson (1976, p. 967) noted that "The meaning (perception) that an individual assigns to a situation appears to be the most influential situational factor affecting his or her behavior". This is, in effect, a major principle in most cognitive and interactional theories. Finally, based on reviews of Bowers (1973) and Arygle and Little (1972), Ekehammar (1974, p. 1034) emphasized "that individuals construe or perceive the same environment differently. This means that the psychological environment may be different for different individuals". Thus, it is suggested that (a) individuals respond primarily to cognitive representations of the situation, (b) the cognitive representations can be described in terms that are psychologically meaningful, and (c) cognitive representations of the same situation may differ among individuals.

Schema theory. The above points were either included directly, or implied, in the assumptions for PC. In addition, cognitive social learning theory has proposed a theoretical paradigm that describes how individuals might represent situations cognitively. For example, Stotland and Canon (1972) presented an extensive discussion of a hierarchical model that might be used to describe, inferentially, the development of cognitive schemas.[5] Briefly summarized, the hierarchical model, beginning with lower levels of abstraction and moving to higher

levels, contained the following concepts:

(1) Dimensions. Dimensions were described as specific entities that individuals employ to represent events in the environment (e.g., size, shape, activities). Dimensions were viewed as learned, and either categorical or continuous. In either case, a particular category or point on a continuum was referred to as a position on a dimension.

(2) Lower-Order Schemas (LOSs). Internal perceptions of relationships among positions on certain dimensions, or awareness of recurring patterns of configurations among dimensions, allow for the development of more abstract and general rules regarding relationships among events. Such abstract and general rules were referred to as LOSs.

(3) Higher-Order Schemas (HOSs). Through internal cognitive processes, individuals may recall and cognitively manipulate selected dimensions of different LOSs, or entire LOSs, and develop even more abstract and generalized schemas based on relationships or configurations among the dimensions and LOSs. Such abstractions and generalizations were referred to as HOSs. Several hierarchical levels of HOSs might exist, where each higher level is based upon conceptualized relationships and/or configurations among lower level HOSs. An HOS might be defined as a general and abstract rule concern-

ing regularities and relationships among events, reflected by "beliefs" about situations (cf. Stotland and Canon, 1972).

Theoretical relationships between HOS and PC. The foregoing rationale is akin to the development of a nomological net that describes a particular set of perceptual/cognitive constructs (cf. Royce, 1973). The paradigm provides a general basis for moving from relatively specific dimensions of the perceptual/cognitive process (intervening variables in a nomological net) to LOSs (more abstract and generalized, but nevertheless lower order constructs), and then to HOSs (more abstract, generalized, higher order constructs). As with nomological nets, higher-order constructs (HOSs) have more explanatory power but are also more removed from the data plane, and lack direct epistemic definition, (cf. James, 1973). This removal from the data plane, lack of direct epistemic definition, and abstraction and generalization are of major importance because, as explained below, they provide a basis for what might involve a considerable amount of perceptual distortion.

The hierarchical schema model is particularly salient to PC because, as noted by a number of authors (cf. Stotland & Canon, 1972), individuals tend to use HOSs to interpret situations (although LOSs and dimensions are obviously involved). Individuals do not, and perhaps cannot, introspect and report the perceptual-cognitive processing involved in arriving at a particular HOS (cf. Nisbett &

Wilson, 1977). Rather, individuals report the end-product of the perceptual-cognitive processes, as reflected by beliefs about situations (HOSs). In particular reference to perceptions of salient aspects of organizational situations, a construct, nomological net model similar to the one presented above for cognitive schemas was proposed by James and Jones (1976) to explain PC. These authors referred to PC as a "higher order abstraction", which appears to be congruent with Schneider's (1975) concept of molar perception, especially if the climate is expressed in terms of composites and/or factors of molar items. Thus, nomological net theory provides a common denominator for theoretical developments of PC and HOSs. The similarity is compelling in that both reflect end-products of cognitive processing, generalization, and abstraction. In fact, it would appear that when addressing psychologically meaningful cognitive representations of situations, the more broadly based schema theory can be employed to describe the development of PC, wherein PC is analogous to a set of HOSs. (It is presumed that the beliefs about situations [HOSs] can be, and often are, expressed in terms that are psychologically meaningful to the individual).

If PC is viewed as a set of HOSs, then several implications from cognitive social learning theory as well as general theory in perception and cognition are important (cf. Bandura, 1977; Brondbent, 1971, 1977; Erdelyi, 1974; Kahneman, 1973; Mischel, 1973, 1977; Natsoulas, 1974; Neisser, 1967; Shiffin & Schneider, 1977; Stotland &

Canon, 1972; Weyer, 1974). For example:

(1) HOSs are not tied to immediate concrete situational stimuli. Individuals tend to synthesize selected details and stimuli leading to dimensions and LOSs, and to recall abstract generalizations about situations (i.e., HOSs). This is especially important to PC because not only do many climate items require molar perceptions, but they also require individuals to recall and to integrate information over what may be weeks, months, or even years of experience in a particular setting (e.g., an item such as "People at upper management levels are aware of the problems and needs at my level of the organization").

(2) HOSs, and PC presumably, can be applied to many situations, or generalized beyond a specific situation to other situations with which the individual has had no direct experience (e.g., vicarious experiences).

(3) HOSs and PC are subject to a host of distortions, including the Gestalt concepts of closure, constancy, and consistency. Other sources of distortion include (a) reconstruction tendencies wherein individuals base their interpretations of one or a few events on an entire HOS (i.e., a particular event may arouse an entire HOS because the HOS is unified and, given one event, the individual has learned to expect the presence of others);

and (b) selective perception, defense mechanisms, and redefinition, which involve self-enhancement, protection of self-esteem, and/or preservation of cognitive consistency (for which there are some conflicting predictions [cf. Dipboye, 1977; Jones, 1973]).

Implications for previous PC research and recommendations. The major implication of the assumptions outlined is that to understand PC it is necessary to address more fully the person side of the P X S interaction as well as the various forms that the interaction might take. What appear to be salient person variables are discussed shortly; however, it is appropriate here to comment on a few of the more recent attempts to view climate perceptions as a function of person and/or situational variables (cf. Dieterly & Schneider, 1974; Gavin, 1975; Herman, Dunham, & Hulin, 1975; Newman, 1975; Jones & James, Note 1).

The Dieterly and Schneider experimental study, and other experimental studies (e.g., Litwin & Stringer, 1968), demonstrated that climate perceptions were significantly affected by experimental manipulations, although a considerable proportion of variance remained unexplained. A field study by Gavin reported that climate perceptions were predicted significantly, but not highly, by both selected biographical and situational components (e.g., personnel composition, type of organization, task context, physical environment). However, biographical x situational interactions failed to achieve significance.

Jones and James found that PC was essentially unrelated to subsystem context (goals, technology, resources) and structure (size, configuration, specialization, etc.). Moreover, only a few of their six PC components were meaningfully related to position variables (e.g., hierarchical level, training, and a restricted set of individual difference measures.

The Herman et al. (1975) and Newman (1975) studies reported multivariate predictions of climate perceptions and affect measures based on "structural position" variables (e.g., hierarchical level, department, workgroup) and demographic characteristics (e.g., age, sex, education, marital status). The results of these studies indicated that (a) position variables were more important than demographic variables in predicting climate perceptions, although the demographic variables did contribute uniquely to prediction (cf. Herman et al., 1975); and (b) individuals in different positions used different frames of reference for viewing organizations, which was reflected both by differences in climate perceptions (an intervening variable) and by affect measures (cf. Newman, 1975). However, the multivariate estimates of redundancy in these studies were not large (e.g., .22 for the combined position and demographic variables in the Herman et al. study).

In effect, the majority of PC variance remains unexplained, and a major effort is needed to explore further the role of individual differences. The identification of person variables that might enter

into the prediction of situational perceptions has been treated extensively by Mischel (cf. 1973, 1976), who recommended the following variable domains as important to the study of cognitive processing: (a) cognitive and behavior construction competencies (e.g., social-intellectual achievement and skills), (b) encoding strategies and personal constructs (e.g., units for categorizing events and self-descriptions), (c) behavior-outcome and stimulus-outcome expectancies in different situations (e.g., expectancies and instrumentalities), (d) subjective values of expected outcomes (e.g., incentives and aversions), and (e) self-regulatory systems and plans (e.g., personal norms and values). Several of these domains have been addressed within climate research, but others remain largely unexplored.

The role of situational variables is, of course, also important in predicting PC. In particular, research is needed that encompasses measures of the proximal environment, including, but not limited to, process variables, systems norms and values, the physical environment (e.g., temperature, lighting, and selected structure (e.g., formalization) and context variables (e.g., resources) (cf. James & Jones, 1976). Position variables are also important, although clarification is needed regarding the composition of these measures (i.e., as discussed later, they appear to be a product of P X S interactions).

Fundamentals II and III

Cognitive representations of situations are related to prior experiences and learning (II), and most human learning is cognitively mediated (III).

Salient points from cognitive social learning theory and cognition. The points to be made here were based on a considerable number of reports (see Footnote 5), and include the following:

(1) Perception, learning, and memory are interrelated cognitive processes. Not only is it generally impossible to differentiate between perception and cognition, but perception is intrinsically tied to learning and memory.

(2) The perceptions of a particular situation are based on learned cognitive schemas developed for the purposes of organization and interpretation. Furthermore, perceptions of particular situations are a partial function of the ability to recall schemas for interpretive purposes.

(3) Individuals who have had different learning experiences develop different cognitive schemas to interpret situations.

(4) Cognitive schemas, particularly HOSs, are relatively impervious to change because (a) they are abstract and generalized and thus are often not highly influenced by inconsistencies between existing HOSs and specific situational stimuli in particular situations, (b) they are familiar, and (c) they are valued (i.e., serve important needs such as self-

esteem and cognitive consistency).

(5) There is a basic antinomy between the desire to preserve familiar and valued cognitive schemas and the degree to which cognitive schemas are open to change (see especially Jones & Gerard, 1967). It has been assumed, and at least partially demonstrated, that individuals tend to develop at least minimally accurate perceptions of situations in an attempt to obtain adaptive fits, to reduce ambiguities, and to predict (i.e., develop expectancies) which behaviors will lead to positively valent outcomes (and not to negatively valent outcomes). However, the extent to which individuals attempt to develop functional or "locationary" perceptions (Dieterly & Schneider, 1974), as opposed to relying upon familiar and valued cognitive schemas, is probably a function of the following nonmutually exclusive considerations: (a) the degree of incongruity between existing HOSs and requirements for adaptive fits; (b) the adaptability of existing HOSs to specific situations; (c) the degree of ambiguity and uncertainty in situations (where individuals may either fall back upon existing HOSs to interpret ambiguous situations or attempt to reduce the ambiguity by seeking new information); (d) the desire to maintain cognitive consistency; (e) the level of cognitive com-

> plexity, where high cognitive complexity connotes a high tolerance for ambiguity and a low need for certainty; (f) the number of and extent to which defense mechanisms are called into play; (g) the extent to which action is required; (h) attribution of cause-effect; and (i) the extent to which important needs and values are served by changes in cognitive schemas, where well-established, potent "schema-based motives" are likely to have stronger effects on HOSs than short-term reinforcements and punishments provided in particular situations.

Although the assumptions derive primarily from experimental studies in perception, cognition, and learning, it is appropriate that the vast research and theoretical effort represented by this literature should be integrated with climate theory and research as well as other areas of applied psychology. A growing body of research suggests strongly that perceptions of environments are a function of complex sets of interrelated cognitive processes, and that indivduals have unique histories of learning experience that lead to at least somewhat idiosyncratic cognitive schemas that are relatively impervious to change. In other words, perceptions of the same situation are likely to differ among individuals and the reasons for these differences are psychologically important!

Implications for prior PC research and recommendations. Simply stated, there has been a tendency to ignore the bases for individual

differences in climate perceptions. On reflection, there appear to be two reasons for this. First, the greater part of climate research has been concerned with climate as a situational attribute (e.g., organizational climate), and not with the individual climate perceptions. As a result, differences in perceptions among members of the same job, role, group, subsystem, or organization have been treated as error variance that hopefully could be circumvented by demonstrating inter-rater reliability, or more typically, significantly more between-group variance that within-group variance. Second, climate research has tended to adopt (emphasized actually) an ahistorical view regarding the formulation of climate perceptions, presuming that perceptions are for the most part accommodative or functional, bending to the need to develop an adaptive (homeostatic) person-situation fit in each new situation (cf. James et al., 1977; Schneider, 1975).

Following the logic of functional perception, if individuals in the same situation are all attempting to adapt (i.e., achieve a homeostatic balance), then one might suggest that the perceptions should be in agreement (i.e., serve as a basis for the formulation of similar behavior-outcome contingencies). The data do in fact provide partial support for this position, primarily by way of agreement and/or accuracy assessments in experimental studies (cf. Dieterly & Schneider, 1974; Frederiksen, Jenson, & Beaton, 1972; Litwin & Stringer, 1968), quasi-experimental field studies (cf. Schneider, 1975 for a review), and in static field studies (cf. Bass, Valenzi, Farrow, & Solomon,

1975; Drexler, 1977; Gavin & Howe, 1975; Hammar & Dachler, 1975; Howe, 1977; Payne & Mansfield, 1973; Schneider, 1975; Synder & Schneider, 1975; Campbell & Beaty, Note 3; Jones & James, Note 1).[6] The experimental studies, as well as quasi-experimental studies, have demonstrated that climate perceptions can be manipulated significantly. Nevertheless, a considerable amount of within-group variance in climate perceptions remains to be explained. Of special concern, however, are the static field studies, where the preponderance of data exist.

Unfortunately, it is not possible to summarize the results of the static field studies without first noting that several of these studies have reported some rather misleading statistics and interpretations, often resulting in inflated estimates of perceptual agreement. These statistical and interpretative problems have been reviewed by Hater (Note 4). Briefly, it was found that:

1. Analyses of interrater reliability based on aggregate perceptual data (e.g., group means) have been reported as if they were assessments of agreement on individual perceptions (cf. Drexler, 1977). This is likely an example of an ecological fallacy, namely a disaggregation bias (Hannan, 1971, 1973), in which no reported attempt was made initially to evaluate the extent to which the group mean perceptions were representative of the individual perceptions.

2. The Spearman-Brown (S.B.) correction has often been applied to inflate estimates of interrater reliability (e.g., intraclass

correlation) (cf. Schneider, 1975 for a review). While the S.B. correction is an estimate of the stability of mean (aggregated) perceptions, it is a fallible indicator of perceptual agreement. For example, Jones and James (Note 1) demonstrated that an intraclass correlation of .05 for "Organizational Esprit" for enlisted men on 20 Navy ships (average n = 185) could be "corrected" to .91 by use of the Spearman-Brown!

3. Average pairwise correlations among profiles on perceptual scores have been used as measures of interrater agreement (cf. Hammar & Dachler, 1975). The problems associated with this procedure are the same as those associated with using correlation as a measure of profile similarity (cf. Cronbach & Gleser, 1975; Nunnally, 1967), and need not be elaborated here.

Thus, if (a) the Spearman-Brown adjustments are negated, (b) the studies using correlation between profiles or analyses based on group means placed aside, (c) a general comparability among eta-squared, omega-squared, and the intraclass correlation assumed (cf. Hater, Note 4), and (d) the above statistics interpreted as indices of interrater agreement, then the range of indices in the literature for field data varies from .00 to approximately .50, with a median of about .12. This is not particularly good evidence on which to build a case for perceptual agreement, and provides only partial support for the functional view of perception. However, it must be noted that situational conditions have not been well-controlled in most of the field studies and thus

all individuals were probably not experiencing the same situations. Nevertheless, these results are somewhat congruent with the experimental studies in which the situational conditions were more controlled and yet a considerable amount of PC variance was unexplained.

It is important to note that our reading of the functional view of perception allows for different adaptive fits for different need states, which connotes that individual differences in perception and behavior might exist within the same situation for individuals with different needs (which also highlights the role of individual differences in perception). The field data may therefore not be quite as damaging for the functional view as they appear. Nevertheless, a considerable amount of variance in PC remains to be explained, and it is believed that this explanation will not be forthcoming until better controls are effected to account for possible situational differences and the full complexity of cognitive processes is addressed. For example, one might begin with Jones & Gerard's concept of an antinomy between functionalism and preservation of valued and familiar (and somewhat idiosyncratic) cognitive schema. To reiterate a prior point, it is necessary to address more fully both the individual and situational correlates of perception. What appear to be some meaningful models for this venture are now discussed.

Fundamental IV

Cognitions, feelings, and behaviors are causally interactive. To this is added the assumption that individuals and situations are causally interactive.[7]

Basic principles from interactional psychology and cognitive social learning theory. The basis for Fundamental IV is seen in the following quotations:

> There appears to be a continuing reciprocal interaction both between the organism and its environment and among the organism's various response systems. Man affects the environment, which affects him, and there are causal interactions among the central, somatic, and autonomic nervous sytems [Mahoney, 1977, p. 8].

> In situations of this kind [unfamiliar situations] six interrelated types of responses occur: affect, orientation, categorization, systemization, manipulation, and encoding. However, it cannot be emphasized too strongly that although we briefly discuss each of the six types (or levels) or responses..., in actual experience not only does their order vary to some degree, but they are so interrelated that one blends into the other [Ittelson et al., 1974, p. 96].

> The person is a function of the situation but also, and more importantly, the situation is a function of the person through the person's (a) cognitive constructions of situations

> and (b) active selection and modification of situations [Ekehammar, 1974, p. 1035].
>
> Not only is the individual's behavior influenced by significant features of the situation he or she encounters but the person also selects the situations in which he or she performs, and subsequently affects the character of these situations. In contrast to classic situationalism, cognitive factors play an important role in the process [Endler & Magnusson, 1976, p. 958].

Salient points and their accompanying implications for prior and future PC theory and research include (a) situation-person reciprocal causation, (b) the importance of cognitive representations and situational indicators, and (c) reciprocal relationships among PC, affect, and behavior. Each of these points is discussed in the following paragraphs.

Situation-Person reciprocal causation. Situations both influence and are influenced by individuals. Similarly, individuals both influence and are influenced by situations. The underlying causal model of interactional psychology is, therefore, reciprocal causation, which is also referred to as "transaction" (Pervin, 1968) and "reciprocal interaction" (Overton & Reese, 1973). This is not a new concept, but its ramifications appear only now to extend beyond theoretical treatments (cf. Greene, 1975; Graen, 1976). Several authors have strongly recommended the adoption of reciprocal causation models in psycho-

logical research (cf. Endler & Magnusson, 1976; Pervin, Note 2; James & Singh, Note 5).

A major implication of situation-individual reciprocal causation models for PC research is that it might not be meaningful to attempt to identify unique causal effects for many situational variables and individual differences on PC, attitudes, and behavior. Many (but not all) situational variables, especially those of a social or process nature (e.g., social norms, leadership, communication patterns), tend to include reciprocal effects of individual influences. Moreover, individual variables of a psychological nature tend to include reciprocal effects of situational influences (including the psychological manifestations of demographic measures such as sex, age, race, and the like). For example, the causal factors underlying the presumably situational variable, decentralization of decision making, are likely to include the reciprocal influences of individual difference variables, such as willingness to accept responsibility, and vice versa. Indeed, "the question of whether individual differences or situations are the major source of behavior variance, like many issues in the history of science, turns out to be a pseudo-issue" (Endler & Hunt, 1966, p. 344). The "appropriate and logical question is 'How do individual differences and situations interact in evoking behavior?'" (Endler, 1975, p. 63). (In this context, the measurement of separate situational and individual difference variables is not questioned. The question refers to how one interprets what has been measured

[i.e., what are the causal factors underlying each measurement]).

Within the climate research area (cf. Gavin, 1975; Herman et al., 1975; Newman, 1975) as well as in attitude research (cf. O'Reilly & Roberts, 1975; Stone & Porter, 1975), attempts have been made to attribute the variance of climate and/or affect variables to situation and/or individual sources. (Studies of affect were included here to demonstrate the generality of the principles. Moreover, the climate studies have often included affect variables). Based on the theoretical discussion above, this could result in a somewhat questionable exercise because of the presumed reciprocal causation between situations and individuals. That is, the reciprocal causation model implies that in relating some situational variables to climate perceptions one might, in effect, be relating (to some unknown degree) individual differences with themselves (i.e., the causal or structural equations for the situational variables include individual difference variables). This appears to be a particular concern for the studies cited above because each one employed some form of "position variables" (e.g., hierarchical level, functional department).

Position variables appear to be only partially situational as they reflect mutual and interactive influences of the individual and the organization. Usually, an individual elects not only to work for but also to stay in a particular organization, to develop the skills for a particular position, and to be motivated or not motivated to seek a promotion. The organization elects to hire and perhaps to

train the individual, to place the individual in a particular position, to retain the individual, and to promote, or not to promote, the individual. Furthermore, although Herman et al. (1975) and O'Reilly and Roberts (1975) attempted to control for individual differences in determining position variable -- climate and/or affect relationships, the position variables very likely still included the influences of unmeasured individual differences. To control position variables, or situational variables in general, for all unique influences of individual differences, one would have not only to measure and to control for all relevant individual variables, but also to return the situational variables to their "pure state" prior to reciprocal causation. This is an impossible task, and future attempts to identify situational and individual correlates of PC, attitudes, and behavior would appear to be better served by models designed specifically to analyze situation-individual reciprocal causation.

The importance of cognitive representations and situational indicators. The most salient set of variables to assess the influence of situations on individuals is comprised by the approach based on the "psychological meaning of the situation for the individual" (Endler & Magnusson, 1976, p. 968). This point and its implications were discussed earlier (see Fundemental I); however, it should be noted further that cognitive social learning theory and interactional psychology make a special issue of the assumption that individuals and situations are inseparable entities because "the situation is a func-

tion of the observer in the sense that the observer's cognitive schemas filter and organize the environment in a fashion that makes it impossible ever to completely separate the environment from the person observing it" (Bowers, 1973, p. 328). This should not be construed to mean that environmental variables, especially proximal variables (cf. Mischel, 1973), are unimportant. One cannot study fully the cognitive social learning model or the interactional model in the absence of situational indicators (Sells, 1973), although it must again be emphasized that such situational indicators might reflect individual causal influences. (The difference between individuals actually changing situations and individual differences in cognitive representations of situations is crucial; both are important.)

Reciprocal relationships among PC, affect, and behavior. While many researchers in perception, cognition, social psychology, and so forth differentiate qualitatively between perception, learning, memory, affect, and, of course, behavior, few would question the postulates that cognition, affect, and behavior are continuously interacting processes and that the measurement of one reflects the causal influences of the others (cf. Wyer, 1974). For example, Stotland and Canon (1972) discussed an "evaluative dimension" which reflected need satisfaction and was considered to be an integral part of many HOSs. Jones and Gerard (1967, p. 254) noted that "There is fairly impressive evidence in the literature on perception, learning, and memory that cognitive processes are geared to the construction of a subjective

reality that is compatible with beliefs, values, and attitudes. This cognitive construction of events involves varying amounts of distortion or nonveridical representation." Furthermore, several models in the Industrial/Organizational literature emphasize the reciprocal relationship, by means of feedback loops, between behavior and perception (cf. James & Jones, 1976; Porter, Lawler, & Hackman, 1975). In a similar vein, several attribution studies have shown that perceptions are affected by knowledge of behavior and performance (cf. Mitchell, Larson, & Green, 1977; Staw, 1975).

If it is presumed that few would question reciprocal relationships between perception (cognition) and behavior, and reciprocal relationships among the cognitive processes or perception, learning, and memory, then a primary implication of this point for PC is the presumed reciprocal relationship between perception and affect. In particular, the relationship between PC and job satisfaction is of interest.

Numerous studies have addressed theoretical and/or empirical relationships between PC and job satisfaction (JS) (cf. Downey, Hellriegel, Phelps, & Slocum, 1974; Gavin & Howe, 1975; Guion, 1973, 1974, 1976; Hellriegel & Slocum, 1974; James & Jones, 1974, 1976; Johannesson, 1973; LaFollette & Sims, 1975; Newman, 1975; Payne & Pugh, 1976; Payne et al., 1976; Schneider, 1975; Schneider & Synder, 1975; Waters et al., 1974). From a theoretical standpoint, a distinction between descriptive (perceptual, cognitive) and evaluative

(affective, emotional) orientations has often been employed to separate the two constructs. As one example, Locke's (1976) causal model for JS was: object (situation) $\longrightarrow$ perception (cognition) $\longrightarrow$ appraisal (value judgement) $\longrightarrow$ emotion; where PC is (presumably) represented by the perception stage and JS by the appraisal and emotion stages (i.e., personalistic evaluations).

The emprical evidence relating PC to JS is mixed. While Schneider and Snyder (1975) found low climate-JS relationships, the results of other studies generally indicated at least moderate relationships (cf. Downey et al., 1974; Gavin & Howe, 1975; LaFollette & Sims, 1975), but not to the extent that climate perceptions and JS were tautological as postulated by Johannesson (1973) and Guion (1973).

The argument here is similar to that made for situational variables and individual differences. Although PC and JS may be qualitatively different constructs, and measured as such, the presumed reciprocal relationship between the constructs connotes that the measurement of either construct includes, to some degree, the causal influences of the other. In other words, asymmetrical, unidirectional causal-models such as Locke's (1976) are replaced by symmetric, reciprocal causal models. For instance, Locke's model might be replaced by: perception (cognition) $\rightleftharpoons$ appraisal (value judgement) $\rightleftharpoons$ emotion (which is also presumably related reciprocally to perception by means of a feedback loop). Not only are the influences of PC on JS addressed from the perspective of a cognitive processing model (see original

assumptions for PC), but the reciprocal effects of prior as well as current appraisals and emotions on perception are also assumed.

For example, it does not appear unreasonable to presume that a prior history of reinforcements and punishments in the same or related situations, and the appraisals and emotions associated with these reinforcements and punishments, might influence not only the events that are perceived in a particular situation but also the manner in which they are interpeted. Previous appraisals and emotions might influence the indiviudal to distort, redefine, reconstruct, etc., perceptions of a particular situation in an attempt to protect self-esteem, maintain a positive self-image, and so forth. Thus, although PC was assumed to have a role as an intervening variable in a cognitive information processing model, it is also assumed that the PC-JS relationship, as well as the relationships between PC and other affect measures, are reciprocal and based upon a dynamic psychological processing (James & Jones, 1974).

Recommendations based on reciprocal causation models. The major implications of reciprocal causation for PC are (a) while psychology has addressed the concept of reciprocal causation theoretically, research, including that in climate, has focused primarily on (implicit) unidirectional causal models or has simply avoided the issue of causality by emphasizing descriptive rather than causal interpretations of results; and (b) the ramifications of reciprocal causation for measurement, for interpretating what has been measured (i.e., the

underlying causal factors reflected in the measurements), and for the appropriateness of research designs has not been recognized, resulting, in some instances, in the treatment of what appear to be pseudoissues (i.e., situational versus individual correlates of climate perceptions and attitudes; unidirectional perception-job satisfaction models).

As emphasized repeatedly by Endler and Magnusson (1976), new methodological models are needed that are designed specifically to examine reciprocal causation. While these authors suggested Markov models to address this problem, it should be noted that several statistical procedures designed specifically to study reciprocal causation have already been developed in econometrics (cf. Baseman, 1957; Christ, 1966; Fisher, 1966; Johnston, 1972; Theil, 1971) and applied more recently in areas such as sociology and political science (cf. Duncan, 1975; Heise, 1975; Goldberger & Duncan, 1973; Namboodiri, Carter, & Blalock, 1975). These procedures include two-stage least squares, three-stage least squares, and time-series analysis. James and Singh (Note 5), in a recent review, suggested that the two-stage least squares procedure appears to be particularly salient for the issues discussed here. Furthermore, the use of this procedure generally requires only a thorough knowledge of multiple regression principles.

In conclusion, it is suggested that if the most attractive theoretical models presume reciprocal causation, then it is time to design the research to fit the models. It is recommended, therefore,

that future research regarding the relationships among PC, attitudes, and behavior, as well as between persons and situations, address the question of reciprocal causation in the design of empirical research.

SUMMARY AND CONCLUSIONS

The objective of this report has been to stimulate climate researchers, as well as those in other areas of applied research who treat situational perceptions as "givens", to develop more sophisticated theory and empirical designs that take into account the multivariate and dynamic processes underlying perception (as well as behavior and situation). In the interest of proposing possible guidelines for the pursuit of this development, the assumed properties of PC are again reviewed, only this time the implications of cognitive social learning theory and interactional psychology are more fully encompassed. This is followed by a brief treatment of proposed research endeavors.

With respect to the properties of PC, the definition remains the same (i.e., psychologically meaningful cognitive representations of situations, and the following assumptions are suggested.

1. PC is analogous to higher order schemas (HOSs), which are relatively abstract and generalized beliefs about situations and which are based on the continuously interacting cognitive processes of perception, learning, and memory. Addressing PC as a set of HOSs assumes intrinsically that PC is represented by a set of perceptual/cognitive variables which intervene between situational attributes and

individual attitudes and behavior. It is also assumed that these perceptual/cognitive variables are represented by psychologically meaningful cognitive representations or interpretations of situations. A corollary to this assumption is that individuals with different experiences and synthesizing capabilities will have different schemas and thus different climate perceptions.

2. PC is multidimensional, with what appears to be a limited number of dimensions that can be employed to characterize psychologically meaningful cognitive representations of organizational environments, although some dimensions will likely be specific to certain situations and, possibly, populations. Variables which appear to be of particular salience are challenge, importance, support, facilitation, cooperation, friendliness, warmth, ambiguity, conflict, and esprit, although variables such as autonomy, pressure, confidence, trust, fairness, growth, and awareness are also important.

3. PC is historical, where a continuing antinomy exists between the openness of PC to change, which may be required for adaptive and functional purposes, and the desire to preserve valued and familiar schemas, especially those that serve important needs such as self-esteem and cognitive consistency. The preservation of valued and familiar schemas is further evidenced in perceptual distortions, such as selective perception, redefinition, defense mechanisms, subjective reconstructions, closure, and the like. A major corollary to this assumption is that differences in climate perceptions are psycho-

logically meaningful.

4. The primary "situational" measures that affect PC are those that are proximal to the experiences of the individual in a particular environment. However, although these variables may be measured as situational, a major corollary of this assumption is that many psychologically important situational variables, as well as individual variables, reflect reciprocal situation-individual interactions, and the measurement of variables representing one domain will often reflect, causally, the influences of the other domain. (This does not preclude the use of more traditional interaction terms, moderators, contingencies, and the like. A brief discussion of the use of interaction terms in reciprocal causation models is presented in James & Singh, Note 5).

5. The underlying causal model linking PC to attitudes and behavior is also one of reciprocal causation (which again does not preclude the use of moderators, contingencies, etc). A corollary of this assumption is that the measurement of variables representing any one of these three domains may include the causal influences of the remaining domains.

Proposed research endeavors are many and varied; however, the broad domains include the following.

1. The inclusion of "person variables" in studies of climate. A broad outline of potentially salient person variables has been presented by Mischel (cf. 1973, 1976, 1977), although variables which

appear to be of salience to PC include cognitive consistency, cognitive complexity, self-esteem, locus of control, attribution, values, needs, expectancies, biographical data, intellectual capabilities, and attitudes.

2. The measurement and study of proximal situational variables in climate studies. A broad outline of potentially salient proximal variables was presented in James and Jones (1976), which included process variables (e.g., leader behaviors [for each subordinate], communication, socialization, conflict, rewards, etc.), system (and group) norms and values (e.g., rationality, impersonality, predictability, loyalty, etc.), and selected structure and context variables (e.g., standardization, resources).

3. The adoption of analytic models to study reciprocal causation (see earlier references).

In conclusion, several years ago Sells (1963) presented a paper entitled "An interactionist looks at the environment". Perhaps the best description of this report is "An interactionist looks at situational perceptions". The term "interactionist" must be emphasized; neither a situational nor a purely phemonomenological model is advocated. Rather, what has been advocated is an interactional as well as a cognitive social learning model that views the formulation of situational perceptions as a complex process that involves reciprocal interactions (as well as the more traditional moderators) among situations, cognitive processes, and other individual differences such

as needs, attitudes, and behavior. This position was assumed because interactional psychology and cognitive social learning theory were perceived as having significant potentials for (a) advancing theoretical perspectives of PC, (b) providing at least partial interpretations of previous results in climate research, and (c) pointing to new research directions for PC. However, much of the information in cognitive social learning theory and interactional psychology is either of a theoretical nature or based on research that might have questionable external validity for organizational research. Nevertheless, the point must be reiterated that climate research has only partially addressed a multivariate, dynamic view of perception, and cognitive social learning theory and interactional psychology appear to be meaningful, basic theoretical perspectives on which to base future research.

Reference Notes

1. Jones, A. P., & James, L. R. Psychological and organizational climate: Dimensions and relationships. (Technical Report No. 77-5). Fort Worth, Tex.: Texas Christian University, Institute of Behavioral Research, 1977.

2. Pervin, L. A. Definitions, measurements, and classifications of stimuli, situations, and environments (Research Bulletin No. 75-23). Princeton, N.J.: Educational Testing Service, 1975.

3. Campbell, J. P., & Beaty, E. E. Organizational climate: It's measurement and relationship to workgroup performance. Paper presented at the meeting of the American Psychological Association, Washington, D. C., September, 1971.

4. Hater, J. J. Agreement among perceptions of psychological climate: A comparison of within-group and between-group designs. Unpublished thesis, Texas Christian University, 1977.

5. James, L. R., & Singh, B. K. Applications of two-stage least squares in causal analysis and structural equations (Technical Report No. 77-6). Fort Worth, Tex.: Texas Christian University, Institute of Behavioral Research, 1977.

References

Allport, G. W. Scientific models and human morals. Psychological Review, 1947, 54, 182-192.

Argyle, M., & Little, B. R. Do personality traits apply to social behaviour? Journal for the Theory of Social Behaviour, 1972, 2, 1-35.

Bandura, A. Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 1977, 84, 191-215.

Bartlett, F. C. Remembering. Cambridge: Cambridge University Press, 1932.

Baseman, R. L. A generalized classicial model of linear estimation of coefficients in a structural equation. Econometrica, 1957, 25, 77-83.

Bass, B. M., Valenzi, E. R., Farrow, D. L., & Solomon, R. J. Management styles associated with organizational, task, personal, and interpersonal contingencies. Journal of Applied Psychology, 1975, 60, 720-729.

Bowers, K. S. Situationism in psychology: An analysis and a critique. Psychological Review, 1973, 80, 307-336.

Broadbent, D. E. Decision and stress. London: Academic Press, 1971.

Broadbent, D. E. The hidden preattentive processes. American Psychologist, 1977, 32, 109-118.

Campbell, J. P., Dunnette, M. D., Lawler, E. E. III, & Weick, K. E., Jr. Managerial behavior, performance, and effectiveness. New York: McGraw-Hill, 1970.

Christ, C. F. Econometric models and methods. New York: Wiley, 1966.

Cronbach, L. J., & Gleser, G. C. Assessing similarity between profiles. Psychological Bulletin, 1953, 50, 456-473.

Dieterly, D. L., & Schneider, B. The effect of organizational environment on perceived power and climate: A laboratory study. Organizational Behavior and Human Performance, 1974, 11, 316-337.

Dipboye, R. L. A critical review of Korman's self-consistency theory of work motivation and occupational choice. Organizational Behavior and Human Performance, 1977, 18, 108-126.

Downey, H. K., Hellriegel, D., Phelps, M. A., & Slocum, J. W. Organizational climate and job satisfaction: A comparative analysis. Journal of Business Research, 1974, 2, 233-248.

Drexler, J. A., Jr. Organizational climtae: Its homogeneity within organizations. Journal of Applied Psychology, 1977, 62, 38-42.

Duncan, O. D. Introduction to structural equation models. New York: Academic Press, 1975.

Ebel, R. L. Estimation of the reliability of ratings. Psychometrika, 1951, 16, 407-424.

Ekehammar, B. Interactionism in personality from a historical perspective. Psychological Bulletin, 1974, 81, 1026-1048.

Endler, N. S. The case for person-situation interactions. Canadian Psychological Review, 1975, 16, 12-21.

Endler, N. S., & Hunt, J. McV. Sources of behavioral variance as measured by the S-R inventory of anxiousness. Psychological Bulletin, 1966, 65, 336-346.

Endler, N. S., & Magnusson, D. Toward an interactional psychology of personality. Psychological Bulletin, 1976, 83, 956-974.

Erdelyi, M. H. A new look at the new look: Perceptual defense and vigilance. Psychological Review, 1974, 81, 1-25.

Fisher, F. M. The identification problem in econometrics. New York: McGraw-Hill, 1966.

Frederiksen, N., Jensen, O., & Beaton, A. E. Prediction of organizational behavior. Elmsford, N.Y.: Pergamon Press, Inc., 1972.

Gavin, J. Organizational climate as a function of personal and organizational variables. Journal of Applied Psychology, 1975, 60, 135-139.

Gavin, J. F., & Howe, J. G. Psychological climate: Some theoretical and empirical considerations. Behavioral Science, 1975, 20, 228-240.

Goldberger, A. S., & Duncan, O. D. Structural equation models in the social sciences. New York: Seminar Press, 1973.

Graen, G. Role-making processes within complex organizations. In M. D. Dunnette (Ed.), Handbook of industrial and organizational psychology. Chicago: Rand McNally, 1976.

Greene, C. N. The reciprocal nature of influence between leader and subordinate. Journal of Applied Psychology, 1975, 60, 187-193.

Guion, R. M. A note on organizational climate. Organizational Behavior and Human Performance, 1973, 9, 120-125.

Guion, R. M. Open a new window: Validities and values in psychological measurement. American Psychologist, 1974, 29, 287-296.

Guion, R. M. Recruiting, selection, and job placement. In M. D. Dunnette (Ed.), Handbook of industrial and organizational psychology. Chicago: Rand McNally, 1976.

Hammer, T. H., & Dachler, H. P. A test of some assumptions underlying the path goal model of supervision: Some suggested conceptual modifications. Organizational Behavior and Human Performance, 1975, 14, 60-75.

Hannan, M. T. Problems of aggregation. In H. M. Blalock (Ed.), Causal models in the social sciences. Chicago: Aldine, 1971.

Hannan, M. T. Aggregation and disaggregation in sociology. Lexington, Mass.: Lexington Books, 1973.

Head, H. Studies in neurology. Vol. 2. London: Oxford University Press, 1920.

Hebb, D. O. Organization of behavior. New York: Wiley, 1949.

Hebb, D. O. A textbook of psychology (3rd ed.). Philadelphia: Saunders, 1972.

Heise, D. R. Causal analysis. New York: Wiley, 1975.

Hellriegel, D., & Slocum, J. W., Jr. Organizational climate: Measures, research, and contingencies. Academy of Management Journal, 1974, 17, 255-280.

Herman, J. B., Dunham, R. B., & Hulin, C. L. Organizational structure, demographic characteristics, and employee responses. Organizational Behavior and Human Performance, 1975, 13, 206-232.

Howe, J. G. Group climate: An exploratory analysis of construct validity. Organizational Behavior and Human Performance, 1977, 19, 106-125.

Indik, B. P. The scope of the problem and some suggestions toward a solution. In B. P. Indik & F. W. Berrien (Eds.), People, groups, and organizations. New York: Teachers College Press, 1968.

Insel, P. M., & Moos, R. H. Psychological environments: Expanding the scope of human ecology. American Psychologist, 1974, 29, 179-188.

Ittelson, W. H., Proshansky, H. M., Rivlin, L. G., & Winkel, G. H. An introduction to environmental psychology. New York: Holt, Rinehart, & Winston, 1974.

James, L. R. Criterion models and construct validity for criteria. Psychological Bulletin, 1973, 80, 75-83.

James, L. R., Hartman, E. A., Stebbins, M. W., & Jones, A. P. An examination of the relationship between psychological climate and a VIE model for work motivation. Personnel Psychology, 1977, 30,

James, L. R., Hornick, C. W., & Demaree, R. G. A note on the dynamic correlation coefficient. Journal of Applied Psychology, in press.

James, L. R., & Jones, A. P. Organizational climate: A review of theory and research. Psychological Bulletin, 1974, 81, 1096-1112.

James, L. R., & Jones, A. P. Organizational structure: A review of structural dimensions and their conceptual relationship with individual attitudes and behavior. Organizational Behavior and Human Performance, 1976, 16, 74-113.

Jessor, R., & Jessor, S. The perceived environment in behavioral science. American Behavioral Scientist, 1973, 16, 801-828.

Johannesson, R. E. Some problems in the measurement of organizational climate. Organizational Behavior and Human Performance, 1973, 10, 118-144.

Johnston, J. Econometric methods (2nd ed.). New York: McGraw-Hill, 1972.

Jones, S. C. Self- and interpersonal evaluations: Esteem theories versus consistency theories. Psychological Bulletin, 1973, 79, 185-199.

Jones, E. E., & Gerard, H. B. Foundations of social psychology. New York: Wiley, 1967.

Kahneman, D. Attention and effort. Englewood Cliffs, N.J.: Prentice-Hall, 1973.

Kantor, J. R. Principles of psychology, Vol. 1. Bloomington, Ill.: Principia Press, 1924.

Kantor, J. R. Principles of psychology, Vol. 2. Bloomington, Ill.: Principia Press, 1926.

Koffka, K. Principles of gestalt psychology. New York: Harcourt Brace, 1935.

LaFollette, W. R., & Sims, H. P., Jr. Is satisfaction redundant with organizational climate? Organizational Behavior and Human Performance, 1975, 13, 257-278.

Lashley, K. S. The problems of serial order in behavior. In L. A. Jeffress (Ed.), Cerebral Mechanisms in Behavior: The Hixom Symposium. New York: Harper and Row, 1951.

Lawler, E. E., III, Hall, D. T., & Oldham, G. R. Organizational climate: Relationship to organizational structure, process, and performance. Organizational Behavior and Human Performance, 1974, 11, 139-155.

Lewin, K. The conceptual representation of the measurement of psychological forces. Durham, NC: Duke University Press, 1938.

Lewin, K. Behavior and development as a function of the total situation. In K. Lewin (Ed.). Field theory in social science. New York: Harper & Brothers, 1951.

Litwin, G., & Stringer, R. Motivation and organizational climate. Boston: Harvard University Press, 1968.

Locke, E. A. The nature and causes of job satisfaction. In M.D. Dunnette (Ed.), Handbook of industrial and organizational psychology. Chicago: Rand McNally, 1976.

Mahoney, M. J. Reflections on the cognitive-learning trend in psychotherapy. American Psychologist, 1977, 32, 5-13.

McNemar, Q. Psychological statistics. New York: Wiley, 1969.

Mischel, W. Personality and assessment. New York: Wiley, 1968.

Mischel, W. Toward a cognitive social learning reconceptualization of personality. Psychological Review, 1973, 80, 252-283.

Mischel, W. Introduction to personality (2nd ed.). New York: Holt, Rinehart, & Winston, 1976.

Mischel, W. *On the future of personality measurement.* American Psychologist, 1977, 32, 246-254.

Mitchell, T. R., Larson, J. R., & Green, S. G. Leader behavior, situational moderators, and group performance: An attribution analysis. Organizational Behavior and Human Performance, 1977, 18, 254-268.

Murphy, G. Personality: A biosocial approach to origins and structure. New York: Harper, 1947.

Murray, H. A. *Explorations in personality.* New York: Oxford University Press, 1938.

Namboodiri, N. K., Carter, L. R., & Blalock, H. M., Jr. Applied multivariate analysis and experimental designs. New York: McGraw-Hill, 1975.

Natsoulas, T. The subjective, experimental element in perception. Psychological Bulletin, 1974, 81, 611-631.

Neisser, U. Cognitive psychology. New York: Appleton-Century-Crofts, 1967.

Newman, J. E. Understanding the organizational structure - job attitude relationship through perceptions of the work environment. Organizational Behavior and Human Performance, 1975, 14, 371-397.

Nisbett, R. E., & Wilson, T. D. Telling more than we can know: Verbal reports on mental processes. Psychological Review, 1977, 84, 231-259.

Norman, D. A. Toward a theory of memory and attention. Psychological Review, 1968, 75, 522-536.

Nunnally, J. C. Psychometric theory. New York: McGraw-Hill, 1967.

O'Reilly, C.A., III, & Roberts, K. H. Individual differences in personality position in the organization, and job satisfaction. Organizational Behavior and Human Performance, 1975, 14, 144-150.

Overton, W. F., & Reese, H. W. Models of development: Methodological implications. In J. R. Nesselroade & H. W. Reese (Eds.), Life-span developmental psychology: Methodological issues. New York: Academic Press, 1973.

Payne, R. L., Fineman, S., & Wall, T. D. Organizational climate and job satisfaction: A conceptual synthesis. Organizational Behavior and Human Performance, 1976, 16, 45-62.

Payne, R. L., & Mansfield, R. Relationships of perceptions of organizational climate to organizational structure, context, and hierarchical position. Administrative Science Quarterly, 1973, 18, 515-526.

Payne, R. L., & Pugh, D. S. Organizational structure and climate. In M. D. Dunnette (Ed.), Handbook of industrial and organizational psychology. Chicago: Rand McNally, 1976.

Pervin, L. Performance and satisfaction as a function of individual environment fit. Psychological Bulletin, 1968, 69, 56-68.

Piaget, J. The origins of intelligence in children. New York: International University Press, 1952.

Porter, L. W., Lawler, E. E., III, & Hackman, J. R. Behavior in organizations. New York: McGraw-Hill, 1975.

Rotter, J. B. Social learning and clinical psychology. New York: Prentice-Hall, 1954.

Royce, J. R. Factors as theoretic constructs. American Psychologist, 1963, 18, 522-528.

Schneider, B. Organizational climate: An essay. Personnel Psychology, 1975, 28, 447-479.

Schneider, B., & Snyder, R. Some relationship between job satisfaction and organizational climate. Journal of Applied Psychology, 1975, 60, 318-328.

Sells, S. B. An interactionist looks at the environment. American Psychologist, 1963, 18, 696-702.

Shiffrin, R. M., & Schneider, W. Controlled and automatic human information processing: II. Perceptual learning, automatic attending, and a general theory. Psychological Review, 1977, 84, 127-190.

Sims, H. P., & LaFollette, W. An assessment of the Litwin and Stringer organization climate questionnaire. Personnel Psychology, 1975, 28, 19-38.

Staw, B. M. Attribution of the "causes" of performance: A general alternative interpretation of cross-sectional research on organization. Organizational Behavior and Human Performance, 1975, 13, 414-432.

Stone, E. F., & Porter, L. W. Job characteristics and job attitudes: A multivariate study. Journal of Applied Psychology, 1975, 60, 57-64.

Stotland, E., & Canon, L. K. Social psychology a cognitive approach. Philadelphia: Sanders, 1972.

Theil, H. Repeated least-squares applied to complete equation systems. The Hague: Central Planning Bureau, 1953 (a).

Theil, H. Estimation and simultaneous correlation in complete equatior The Hague: Central Planning Bureau, 1953 (b).

Theil, H. Principles of econometrics. New York: Wiley, 1971.

Treisman, A. M. Strategies and models of selective attention. Psychol Review, 1969, 76, 282-299.

Waters, L. K., Roach, D., & Batlis, N. Organizational climate dimensic job-related attitudes. Personnel Psychology, 1974, 27, 465-476.

Winer, B. J. Statistical principles in experimental design. New York: Hill, 1971.

Wyer, R. S. Cognitive organization and change: An information process approach. Potomac, Md.: Erlbaum, 1974.

Footnotes

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[1]The 35 a priori scales employed in our PC measure, and studies reporting the invariance of the majority of the PC components underlying these scales across relatively diverse samples, are reported in Jones and James (Note 1). The five components with demonstrated invariance were (1) Job Challenge, Importance, and Variety; (2) Conflict and Ambiguity; (3) Leadership Facilitation and Support; (4) Workgroup Cooperation, Friendliness, and Warmth; and (5) Organizational Esprit.

[2]In the discussion above, as well as in others, the use of the terms "situational attribute" and "individual attribute" connote domains of measurement. They do not imply that the measured variables are always entirely situational or entirely individual (as discussed later, a reciprocal interaction is often assumed).

[3]An analogy from environmental psychology might add

Footnotes (Continued)

clarification to the point we are attempting to make. That is, the (perceived) density of individuals in a particular space would be a situational descriptor in our model. However, perceptions of crowding provide the psychologically meaningful cognitive representations.

[4]In several recent papers (James et al., 1977; Jones & James, Note 1), the phrase "perceived situational influences" was employed in the definition for PC. We decided to replace this phrase with "psychologically meaningful cognitive representations", which in effect has the same conceptual meaning but, hopefully, is less subject to misinterpretation (e.g., some have interpreted a perceived situational influence to mean that PC is a mirror reflection of situational stimuli, which was not at all intended [cf. James & Jones, 1974]).

[5]The model presented here was based upon research and/or theoretical propositions regarding catholic cognitive processing models (cf. Allport, 1947; Bartlett, 1932; Head, 1920; Hebb, 1949, 1972; Ittelson et al., 1974; Jones & Gerard, 1967; Lashley, 1951; Piaget, 1952). The model is also generally consistent with the more recent and rigorous models of perceptual and cognitive information processing (cf. Broadbent, 1971, 1977; Erdelyi, 1974; Kahneman, 1973; Neisser, 1967; Norman, 1968; Shiffin & Schneider, 1977; Theisman, 1969; Weyer, 1974). For example, a hierarchical

Footnotes (Continued)

system wherein detailed and specific features of perception are nested within more global and abstract ones in generally common to the models. (This should not be construed to mean that differences do not exist among the models. Such differences are, however, beyond the scope of this report.)

[6]Some of these references were not reported as climate studies; however, they addressed both perceptual agreement and a domain salient to climate measurement (e.g., perceptions of leadership).

[7]Some cognitive social learning theories, particularly that of Mischel's (cf. 1973), tend to treat cognitive representations as (individualistic) intervening or mediating variables, mediating between situational stimuli and behavior (cf. Bowers, 1973). However, the interactional models, and more recent papers by Mischel (cf. 1977), emphasize reciprocal causation between individuals and their environments, where the individual is not only a mediator but also an active agent in influencing situational events. As explained in this report, the active influence of the individual on the situation, and vice-versa, questions the utility of the treatment of many socially important situational attributes as if they were stimuli devoid of individual influences, and the role of the individual as a passive mediator (cf. Bowers, 1973; Endler & Magnusson, 1976).

It is also important to note that a number of salient causal considerations such as short-term versus long-term causal relation-

Footnotes (Continued)

ships (e.g., stationarity of the structural models) are important, but beyond the scope of this report.

Table 1

Situational Perception Items for Situational Descriptors versus Psychologically Meaningful Cognitive Representations

Situational Descriptors	Psychologically Meaningful Cognitive Representations
1. A written job description exists for my job?	1. How often are you kept <u>informed</u> about the things you need to know about your work?
2. How frequently does your supervisor ask questions of his/her subordinates?	2. To what extent is your supervisor <u>attentive</u> to what you say?
3. How often do most of the members of your workgroup meet together during lunch or breaks?	3. To what extent do the members of your workgroup have <u>warm</u> and <u>friendly</u> <u>relationships</u>?
4. Promotions and pay raises in this organization are based on merit rather than seniority?	4. To what extent does your organization emphasize personal <u>growth</u> and <u>development</u>?

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